AGING AND AFFECT HEURISTIC - Cornell, Fall 2019, Qualtrics survey (#29144)

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1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?
This study evaluates whether reliance on the affect heuristic (AH) increases with age. Because the affect heuristic has been tested in different ways, we utilize three existing affect heuristic measures.

Task 1 = Negative correlation between perceived risks and perceived benefits of food additives; reversed so that higher values = stronger reliance on AH.

Task 2 = Positive correlation between feelings of dread and statistical estimates regarding causes of death; higher values = stronger reliance on AH.

Task 3 = Positive correlation between affective response to a catastrophic scenario (higher scores = stronger negative affect) and rating of impact (higher scores = stronger perceived impact). Sub-indices differentiate between man-made and natural causes.

Hypothesis 1: Older age predicts a stronger reliance on the AH across all three tasks.

Hypothesis 2: Stronger reliance on the AH predicts a stronger extent of bias/ incorrect inferences in Tasks 2 and 3.

Hypothesis 3: Reliance on the AH correlated across tasks.

Hypothesis 4: The following covariates predict decreased reliance on AH:
- Self-reported preference for facts and details over feelings and intuition [higher values = stronger preference for facts]
- Behavioral information processing preference [higher values = stronger preference for facts/numbers]
- Cognitive reflection ability

Question 1: To what extent do other demographic, cognitive, and socioemotional covariates predict reliance on AH?

3) Describe the key dependent variable(s) specifying how they will be measured.
Age (continuous)

Task 1 AH index (correlation between perceived risks and perceived benefits across five food characteristics; correlation ranges from -1.00 to +1.00; reversed so higher values = stronger reliance on AH)

Task 2 AH index (correlation between dread and death rate estimate across five causes of death; correlation ranges from -1.00 to +1.00)

Task 2 bias/lack of correctness (mean absolute difference between actual US annual death rates and death rate estimates)

Task 3 AH index (correlation between negative affective response and perceived impact of catastrophic scenarios; 3 “man-made” and 3 “naturally caused” items, -1.00 to +1.00)

Task 3 bias (mean absolute difference in impact ratings between man-made and naturally caused catastrophic scenarios, 0 to 100)

Please see here for further details (this document was also deposited on OSF on 10/13/2019):
https://docs.google.com/document/d/1eXm1ZRpxqftXJNSjxmUBrwvfkpoZoXagyX_vWOStGqE/edit?usp=sharing

4) How many and which conditions will participants be assigned to?
Age = treated as a continuous variable.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
H1: For each AH index, we regress use of the AH on age.

H2: In Tasks 2 and 3, bias/ incorrect inferences will be regressed on use of AH.

H3: Correlations between the three AH indices.

H4: We regress reliance on each AH index on self-reported preference for facts, behavioral information processing preference, and cognitive reflection ability.

Q1: We regress AH indices on other demographic, cognitive, and socioemotional covariates (please see 8).

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
We winsorize all univariate outliers to values equaling z-scores of +/- 3.30, 3.31, etc. Multivariate outliers are cases where Mahalanobis Distance = X2 < .001.

We rely on Qualtrics XM's default criteria for handling method-based outliers (e.g., time to complete the survey).

Participants are excluded if age is missing, below 18, over 120, or does not march birth year (1 year error margin). Participants must pass attention and cheating checks.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
225 participants recruited through the Qualtrics Recruitment Services (75n 18-35, 75n 36-65, 75n 66+ years). Selective recruitment to yield comparable gender and race/ethnicity composition across groups.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)
Variable details (this document was also deposited on OSF on 10/13/2019):
https://docs.google.com/document/d/1eXm1ZRpxqftXJNSjxmUBrwvfkpoZoXagyX_vWOStGqE/edit?usp=sharing

We conduct the following supplementary analyses.:

Task Type 1
- To confirm the role that affect (here assessed as self-reported attitude) plays in the context of Task Type 1, we will run correlations between perceived risks and attitude, perceived benefits and attitude, and a partial correlation between perceived risks and perceived benefits that controls for attitude. In order to do so, we will run separate correlations for each participant across the five items, and summarize all participants' scores in one variable per risk-attitude, benefit-attitude, and partial risk-benefit correlation (-1.00 to +1.00). We expect a negative correlation between perceived risks and attitude, a positive correlation between perceived benefits and attitude, and a weak negative or positive correlation for the partial risk-benefit correlation (as opposed to a moderate to strong negative correlation between risks and benefits without accounting for attitude). If we do not find the expected associations, we will discuss implications for the validity of Task Type 1 in our discussion section.

Task Type 2
- To evaluate alternative factors that may influence the death estimates that participants generate, we regress death estimates on age, affect, direct, and indirect exposure.
- In an alternative test of AH, participants complete a forced-choice task involving all five mortality items. In a random order, participants will have to choose which of two of the causes of death kills more people in the US per year. These decisions will be coded for their reliance on affect ratings and for their correctness on the basis of actual US mortality statistics. We will report on the overall percentage of cases in which affect ratings correctly differentiate between more and less common causes of death and regress each participant's percentage of correct choices on the Task Type 2 affect heuristic and age.

Task Type 3
- To confirm the hypothesized role of affect in Task Type 3, and to examine the existence of bias, we conduct two 2 (cause) x 3 (scenario) factorial analyses to see whether a) affect ratings and b) impact ratings for a given catastrophic scenario differ between man-made and natural causes.